



Best Management Practices for Construction and Development Projects Grotto Sculpin *Cottus specus*

Common name • Grotto Sculpin
Scientific name • *Cottus specus*
Federal status • Endangered
State status • Endangered

Purpose and Use

The information in this document is to be used to help avoid and minimize species impacts due to construction practices. It is not intended as a guide to manage habitat for a given species. Please contact the Department of Conservation if habitat management information is needed. Because every project and location differ, following the recommendations in this document does not guarantee impacts will not occur to the species and additional information may be required in certain instances. Following the recommendations in this document does not complete Endangered Species Act consultation that may be necessary for species listed under the federal Endangered Species Act; please contact the U.S. Fish and Wildlife Service for more information.

Ecology

The range of the Grotto Sculpin includes much of the eastern portion of Perry County, Missouri. They are found in five cave systems and their respective spring branches in the Perry County Karst Region. Grotto Sculpin live in and move between their respective cave streams and springs resurgences to complete their life cycle. Much of the cave substrate is silt with rubble bottoms, or occasionally there may be some gravel riffles. Food habits have yet to be determined but it is presumed that they feed upon plankton, isopods, amphipods, crayfish, and salamander larvae. Due to the porous nature of this karst region, organic matter from surface runoff provides energy and nutrients for all cave life to utilize including Grotto Sculpin. Grotto Sculpin nesting behavior has been documented in the fall/winter during November and December. This species is presumed to spawn during the winter months from January to March. Adult Grotto Sculpin have been documented to reach lengths of 5.2 inches.

Reasons for Decline

In the Perry County Karst Region, cave streams and spring resurgences are directly affected by activities on the surface landscape. Cave species like the Grotto Sculpin are vulnerable to runoff from agriculture and livestock operations, malfunctioning septic tanks, sewage lagoons, chemical spills, urban runoff, and leakage from underground storage tanks. Increases in

these anthropogenic sources can drastically impair groundwater quality and impact all aquatic cave biota.

Specific Recommendations

Species like the Grotto Sculpin are indicators of clean, healthy aquatic systems. A decline in the population suggests that the subsurface streams are impaired. Following these recommendations will avoid or minimize impacts to cave systems and the Grotto Sculpin.

- Minimize sedimentation and chemical or nutrient-laden runoff into streams, sinkholes, vertical drainpipes, caves, and abandoned wells by implementing and monitoring erosion and sediment controls for the duration of the project.
- Establish and maintain forested buffers at least 100 feet wide along streams and at least 50 feet wide around cave and sinkhole entrances as well as vertical drainpipes.
- Do not seal or alter cave entrances or sinkholes as sculpin depend on the outside environment for food and nutrients.
- Take care to contain all construction debris to prevent its accidental introduction into caves, sinkholes, or springs as a result of clean-up activities, run-off, flooding, wind, or other natural forces.
- Dispose of chemicals, toxic waste, garbage, and wash water from trucks in areas designated for such wastes. These sites should be away from caves, vertical drainpipes, and sinkholes.
- If temporary roadways must be built, ensure they are of low gradient with sufficient roadbed and storm water runoff drains and outlets.
- Re-vegetate disturbed areas as soon as possible to minimize erosion.
- During times of pesticide application, avoid spraying at least 50 feet from any groundwater input (i.e., sinkholes, vertical drainpipes, spring resurgences, and streams).
- In addition, avoid pesticide and herbicide application prior to precipitation events to minimize direct runoff into nearby groundwater inputs.
- Avoid and minimize disturbances during nesting and spawning activities from November to March.

General Recommendations

Refer to *Best Management Practices for Construction and Development Projects Affecting Missouri Rivers and Streams* and *Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat*.

If your project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or the [Missouri Department of Transportation Environmental Studies webpage](#) for additional information on recommendations.

appropriate agency. Following the recommendations provided in this document will help reduce and avoid project impacts to the species, but impacts may still occur. Please contact the appropriate agency for further coordination and to complete compliance requirements.

Information Contacts

For further information regarding regulations for development in rivers and streams, contact:

For species information:

[Missouri Department of Conservation](#)

Science Branch
P.O. Box 180
Jefferson City, MO 65102-0180
Telephone: 573-751-4115

For species information and Endangered Species Act Coordination:

[U.S. Fish and Wildlife Service](#)

Ecological Services
101 Park Deville Drive, Suite A
Columbia, MO 65203-0007
Telephone: 573-234-2132

For Clean Water Act Coordination:

[Missouri Department of Natural Resources](#)

Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176
Telephone: 573-751-1300, 800-361-4827

[U.S. Army Corps of Engineers](#)

Regulatory Branch
700 Federal Building
Kansas City, MO 64106-2896
Telephone: 816-389-3990

[U.S. Environmental Protection Agency](#)

EPA Region 7 Water Division
11201 Renner Boulevard
Lenexa, KS 66219
Telephone: 913-551-7977

Disclaimer

These Best Management Practices were prepared by the Missouri Department of Conservation with assistance from state and federal agencies, contractors, and others to provide guidance to those who wish to voluntarily act to protect wildlife and habitat. Compliance with these Best Management Practices is not required by the Missouri wildlife and forestry law nor by any regulation of the Missouri Conservation Commission. Federal laws such as the Clean Water Act and the Endangered Species Act, and state or Local laws need to be considered for construction and development projects and require permits and/or consultation with the